

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC. 20554

<b>In the Matter of</b>	)	
	)	
<b>Allocations and Service Rules</b>	)	<b>WT Docket No. 02-146</b>
<b>for the 71-76 GHz, 81-86 GHz,</b>	)	
<b>and 92-95 GHz Bands</b>	)	
	)	
<b>Loea Communications</b>	)	<b>RM-10288</b>
<b>Corporation Petition for</b>	)	
<b>Rulemaking</b>	)	
	)	
	)	

**To: The Commission**

**COMMENTS of Nickolaus E. Leggett**  
**N3NL Amateur Radio Operator**

The following are comments from Nickolaus E. Leggett, an amateur radio operator (Extra Class licensee – call sign N3NL), inventor (U.S. Patents # 3,280,929 and 3,280,930 and one invention patent pending), and a certified electronics technician.

**81 – 81.5 GHz Amateur Radio and Amateur Satellite Allocation**

In Paragraph 32 on Page 13, the Commission requests comment on the need for a 81 – 81.5 GHz amateur radio and amateur satellite secondary domestic allocation in view of the primary allocation on 77.5 – 78 GHz for these services.

While an allocation on 81 – 81.5 GHz appears to be esoteric today, it will not remain that way for long. Amateur radio operators will modify and rework the commercial equipment that appears on the millimeter waves to operate on this frequency range.

Most of the amateur radio communication on 81 – 81.5 GHz will consist of narrow beam contacts between fixed and/or portable stations. The stations can use a lighthouse protocol for establishing contact (call setup) that will support an informal process of making contact similar to that used on lower frequency amateur bands. In the lighthouse protocol, at specified points within each hour the amateur stations will rotate their beams while sending and looking for call setup packets. When the packets are exchanged, the rotation will stop and a communications session (QSO) will be conducted. Each amateur radio station starts its lighthouse period rotation pointed randomly at a different compass heading. This will prevent the stations from all pointing in the same direction at the same time that would prevent contact and call set up.

This particular frequency band is useful for amateur radio because of the demographic trends in the United States. More and more of this Nation is urban with many people living in high-density housing. Amateurs will migrate to the millimeter wave bands because even a highly directional antenna for these bands is very small in size and can be accommodated on an apartment window sill or small space under the overhang of a roof. The continued widespread presence of restrictive covenants will increase the appeal of amateur radio bands that can be supported by tiny “invisible” antennas. Some amateurs will create phased-array antennas that can be built directly into the walls or roof of a dwelling with the beam aimed electronically by the phase relationship.

Fairly broad frequency allocations in the millimeter waves are needed to support wide band communications and to allow for the fact that it can be difficult to produce a stable oscillator in this frequency range.

### **Radio Astronomy Service Allocations on 81 -86, 92 -94, and 94.1 -95 GHz**

In Paragraph 44 on Page 16, the Commission asked about the need to allocate 81 - 86, 92 -94, and 94.1 -95 GHz to the Radio Astronomy Service (RAS) on a primary basis given the existing allocation of 86 -92 GHz to the RAS.

These additional frequencies should be allocated to radio astronomy at this time. If these frequencies were allocated now to commercial services, it would be virtually impossible to re-allocate them to radio astronomy at a later date. Thus frequencies that are lost to radio astronomy are basically lost forever with no option for recovery. As a result of this, we should lean toward allocating a maximum range of frequencies to radio astronomy. If at a later date this is found to be excessive, the frequencies can then be reallocated to competing services.

**Respectfully submitted,**

**Nickolaus E. Leggett, N3NL**  
**1432 Northgate Square, Apt. 2A**  
**Reston, VA 20190-3748**  
**(703) 709-0752**  
**[nleggett@earthlink.net](mailto:nleggett@earthlink.net)**

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